E. R. DOUGLAS.

COLLAPSIBLE DRINKING VESSEL.

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1,040,652.

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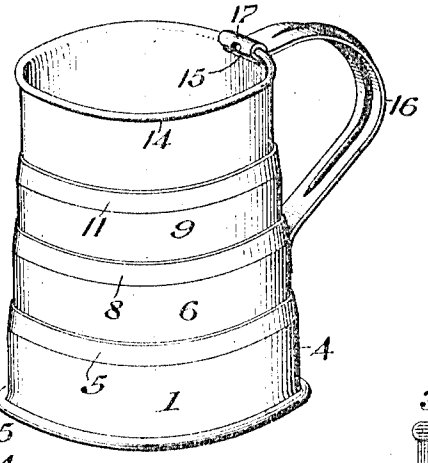


Fig. 1.

Fig. 3

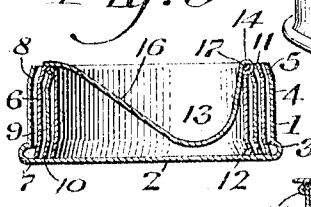
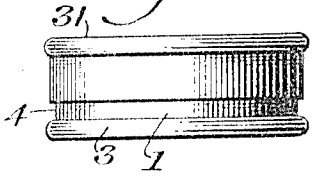


Fig. 4.



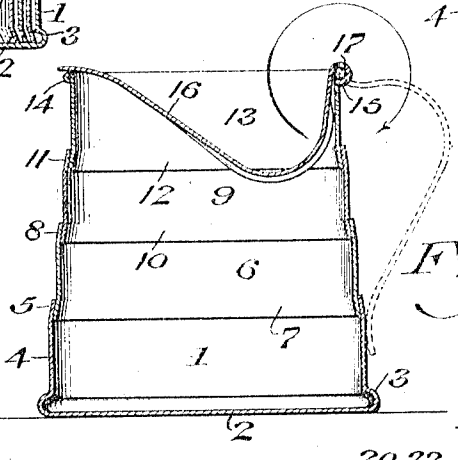
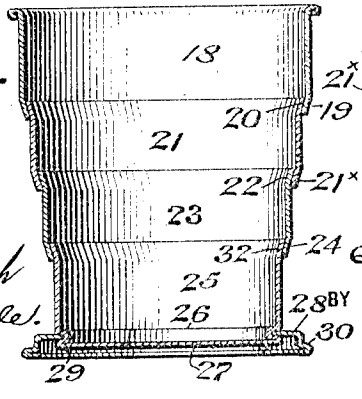
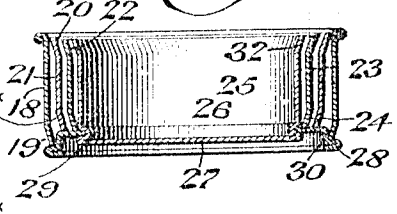


Fig. 2.

Fig. 6.

Fig. 5.





WITNESSES

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EDWIN RUST DOUGLAS, OF ABINGTON, PENNSYLVANIA, ASSIGNOR TO THE HERO MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

COLLAPSIBLE DRINKING VESSEL.

1,040,652. Specification of Letters Patent. Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, EDWIN RUST DOUGLAS, a citizen of the United States, residing at Abington, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Collapsible Drinking Vessel, of which the following is a specification.

My invention relates to collapsible drinking vessels of the telescoping type, in which a number of sections are nested, one within the other and are adapted to be drawn out to form the cup.

The invention consists of such a cup in which a number of sections are formed each with an outwardly flaring end and with an inwardly contracted end and of such relative diameters that the flared end of one section may fit into and be retained by the contracted end of the adjoining section.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Heretofore drinking cups or mugs have been formed from truncate-conical sections, each section nested into the next larger section and such cups have usually been made from a shell drawn to a taper and circumferentially cut into sections. Such sections are thereupon nested, so that the wide end of the smallest section will fit within the narrow end of the next larger section, and so forth. In this form of cup it is of the utmost importance to keep the sections formed from each shell together, as slight differences in the thickness of the metal or in the drawing of the shell may make considerable difference in the taper, and should one section from a shell be damaged or lost, the entire shell is wasted, as it is almost impossible to obtain absolute uniformity in drawing the tapering shells and severing them into sections. Also, should a number of sections happen to get mixed, it will involve either a very careful and time-wasting sorting out of the sections to get the proper sections together, or the fit between the sections of each cup will be inaccurate if the sections are not assorted but assembled haphazard.

The annexed drawings and the following description set forth in detail, two mechanical forms embodying the invention; such detail construction being but two of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings—Figure 1 represents a perspective view of a mug embodying my invention. Fig. 2 represents a section of such mug in its operative or extended condition. Fig. 3 represents a section of the mug in its collapsed condition. Fig. 4 represents an edge elevation of the collapsed mug in its cover. Fig. 5 represents a section of a cup embodying my invention in its operative or extended condition. Fig. 6 represents a section of such cup in its collapsed condition.

Referring to the drawings, the numeral 1 indicates the section of the greatest diameter, which, in the mug illustrated in Figs. 1 to 4, inclusive, forms the bottom section and has a bottom 2, which is preferably formed in one piece with the sides, having a bead, 3, surrounding it. The sides, 4, of said section are straight cylindrical, and formed with an inwardly contracted upper portion, 5, forming a beveled seat. The next smaller section, 6, is straight cylindrical and of slightly less diameter,—preferably of an outside diameter equal to the inside diameter of the contracted portion of the larger section,—and the lower portion, 7, of said smaller section is outwardly flared to fit in the beveled seat of the larger section. The upper portion, 8, of said smaller section is inwardly contracted to form a beveled seat like that of the first section. A third section, 9, is of the same external diameter as the inside diameter of the contracted end of the second section, and has an outwardly flared lower portion, 10, which fits in the beveled seat of the second section. The upper portion, 11, of said third section is contracted to form a beveled seat, and the outwardly flaring lower portion, 12, of the top section, 13, fits in said seat like the preceding sections. The upper edge of this top-section is turned over to form a round bead, 14, and a slot, 15, is formed beneath a portion of said bead and one end of a curved handle, 16, is bent around the bead and passed through the slot, to form an eye, 17, which fits to turn upon the free portion of the bead, so that the handle may

be turned into the mug when the latter is collapsed and down upon the side of the extended mug. A cylindrical cap, 31, may be provided to fit upon the bottom-section to close the collapsed mug.

The embodiment of my invention illustrated in Figs. 5 and 6 is a cup, and the largest section, 18, is in this instance the top-section. Said section has a contracted portion, 19, forming a beveled seat for the outwardly flaring end, 20, of the second section, 21, the opposite end, 21^x, of which is contracted to form a seat in which fits the outwardly flared end, 22, of the third section, 23, which has a contracted end, 24, forming a seat in which fits the outwardly flaring end, 32, of the fourth or bottom section, 25. Said section has a bottom, 26, formed with a central portion, 27, which is so pressed or otherwise shaped to overlap the inner edge of an annular foot, 28, from both sides of the foot to form clamping beads, 29. The outer edge of the annular foot is preferably shouldered, at 30, so as to raise the bottom of the lower section.

In the manufacture of the cup and mug, the sections are drawn cylindrical and of the proper diameter. A number of sections of each diameter are preferably drawn in one cylindrical shell and thereupon cut off into proper lengths. When used in the construction of a mug, the cylindrical middle sections are flared at one end and contracted at the opposite end, and the top section is flared at its lower end, all by means of suitable dies. Sections of properly decreasing diameter are now assembled and nested, and the flaring end of each section will be seated within the beveled seat of the next larger section. The cylindrical bottom section is thereupon placed over the flaring portion of the next smaller section and suitably contracted at its upper portion to fit over the flaring portion of said next section. The handle may now be attached to the top-section of the assembled mug, which may then be finished as desired or required.

The sections composing a cup are similarly drawn in cylindrical form and flared and contracted, whereupon the sections are nested. In the cup all the sections are nested at one time, whereupon the foot is secured to the bottom section, as described.

By seating the sections with flaring portions in the beveled seats, the remainder of each section being cylindrical, greater capacity proportionate to height and greatest diameter of the cup or mug is attained, than in a collapsible cup or mug formed from conical sections, and the diameter of the smallest section is considerably greater in this stepped cup than in a conical cup of the same height and greatest diameter, all owing to the fact that the interfitting bevels of the sections only extend for parts of their length instead of throughout each section and throughout the assembled cup, rendering the taper or contraction throughout the height of the vessel proportionately so much greater.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth respectively in the following claims are employed.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A collapsible drinking vessel, comprising a closed base member, a plurality of cylindrical sections of different diameters admitting of one section nesting within an adjoining section, a smaller diameter section having an edge-portion conically expanded and a larger diameter section having an edge-portion correspondingly conically contracted to frictionally and expansively engage said flaring edge portion when the sections are distended, and said conical edge-portions being of substantially the same thickness as the cylindrical portions.

2. A collapsible drinking vessel, comprising a base member having a cylindrical ring of uniform diameter projecting upward therefrom, the upper portion of said base member being beveled inwardly, a second section having its intermediate portion formed of a cylindrical ring of uniform diameter throughout, and provided with a lower outwardly beveled portion of the same thickness as said cylindrical portion said outward bevel conforming to the upper bevel of said base member, the top of said second section above said cylindrical portion being beveled inwardly, and a third section having its intermediate portion composed of a cylindrical ring of uniform diameter, and provided with a lower outwardly beveled portion of the same thickness as said cylindrical portion and beveled outwardly at the same angle as the top inward bevel of said second section, said cylindrical portions being of varying diameters, and the juxtaposed beveled portions when the vessel is expanded being beveled on the same angle and in intimate frictional contact with each other.

3. A collapsible drinking vessel, comprising a base member, having straight cylindrical sides, and an inwardly contracted upper portion 5, a second section 6 having its body portion of uniformly cylindrical contour, and of an outside diameter equal to the inside diameter of said contracted portion 5, the lower portion 7 of said second section being of the same thickness as said cylindrical body portion and being outwardly flared to snugly fit the inner periphery of said con-

tracted portion 5, the upper portion 8 being inwardly contracted, and an upper section 9 having an intermediate straight cylindrical body portion of the same external diameter as the inside diameter of said beveled portion 8, the lower portion 10 of said section 9 being beveled to fit within said beveled portion 8, and being of the same thickness as said cylindrical body portion.

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